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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,732	08/30/2006	Masahiro Narita	053239	5974
38834 7590 05/29/2007 WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			EXAMINER FUTEL, GAYLA S	
			ART UNIT 2609	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/553,732

Applicant(s)

NARITA, MASAHIRO

Examiner

Gayla Futel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) ____ is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 October 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 10/20/2005.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

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DETAILED ACTION

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in Japan on 21 April 2003. It is noted, however, that applicant has not filed a certified copy of the JP 2003-116101 application as required by 35 U.S.C. 119(b).

Claim Objections

2. Claim 6 objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Accordingly, the claim has not been further treated on the merits.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Eriksson et al. (US Patent No. 6,963,733).

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5. Regarding claim 1, Eriksson et al. anticipates a receiving apparatus including a plurality of antennas and a plurality of signal processing units (**Fig. 3, # 40A, 40B**), each of which processes a received signal of one of the plurality of antennas, comprising:

- A gain control signal-generating unit (**Fig. 3, #50**) operable to generate a gain control signal based on a signal obtained from one of the plurality of signal processing units (**Col. 5, lines 15-19**);

- A plurality of variable gain units (**Fig. 3, #42A, #42B**), (i) each of which is included in one of the plurality of signal processing units, and (ii) whose gains are controlled based on the gain control signal; and

- A gain standardizing unit (**Fig. 3, #46A, #46B**) operable to, when the gains are uniformly controlled based on the gain control signal, assigns a gain to each of the plurality of signal processing units to offset a gain deviation occurring therein (**Col. 5, lines 31-33**).

Eriksson et al. teaches that the standardizing unit (**Fig. 3, #46A, #46B**) compares the received signal with a threshold signal. It can be anticipated that the controller will adapt the variable amplifier gain based on the threshold signal.

6. Regarding claim 3, Eriksson et al. teaches the receiving apparatus of claim 1 as stated above. Eriksson et al. further anticipates

- The gain standardizing unit pre-stores, for each of the plurality of signal processing units, an offset corresponding to gain deviation (**Col. 5, lines 26-27**),
- The gain control signal is corrected, for each of the plurality of signal processing units, by adding the pre-stored offset thereto (**Col. 5, lines 31-33**), and

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-The gains of the plurality of variable gain units are controlled, for each of the plurality of signal processing units, based on the corrected gain control signal (**Col. 5, lines 15-17**).

Eriksson et al. teaches that the threshold is in the gain standardizing unit (**Fig. 3, #46A, #46B**), which will correct the gain deviation. Eriksson et al. further teaches that after the received signal is compared to the threshold, the variable amplifier gain is adapted. It can be anticipated that the variable amplifier gain is adapted based on the corrected gain control signal.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al. (US Patent No. 6,963,733) in view of Banh et al. (US Patent No. 5,721,757).

Eriksson et al. teaches the receiving apparatus of claim 1 as stated above. However, Eriksson et al. fails to teach the gain standardizing unit comprises a plurality of gain regulators, each of which is included in one of the plurality of signal processing units and assigns the gain to one of the plurality of signal processing units to offset the gain deviation occurring therein. Banh et al. teaches a receiver system (**Fig. 2**) that performs signal processing within the automatic gain control loop (**Fig. 4**). Each of the automatic

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gain control loops (**Fig. 2, #222 i-iii**) is connected to three separate signal-processing units (**Fig. 2, #76, #78, #80**). The signal processing units, which act as gain regulators, are used to adjust the gain of the variable gain amplifiers (**Col. 5, lines 7-11, lines 16-18; Col. 6, lines 50-54**). It would have been obvious to one of ordinary skill in the art to use a processing unit with the branch gain controller of Eriksson et al. because the processing units provide signal analysis to the gain controller, which will help in the assignment of the gain to offset the gain deviation.

9. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al. (US Patent No. 6,963,733) in view of Takakusaki (US Patent No. 7,058,425).

10. Regarding claim 4, Eriksson et al. teaches the receiving apparatus of claim 3 as stated above. However, Eriksson et al. fails to teach the limitations of claim 4.

Takakusaki teaches a base station with a receiving apparatus that contains a storage section (**Fig. 15, #1203**) that puts values into a calibration table offsets based on amplitude and phase of the received signals and the gain of the amplifier (**Col. 18, line 64-Col. 19, line 3**). The calibration table is then used to correct the gain control signal (**Col. 19, lines 9-12**) in accordance with the signal received (**Col. 19, lines 14-22**). It would have been obvious to one of ordinary skill in the art to put the calibration table of Takakusaki within the gain stabilizing controller of Eriksson because the calibration table would eliminate the need for separate equipment to provide the signal and would therefore decrease the size and cost of the apparatus.

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11. Regarding claim 5, Eriksson et al. teaches the receiving apparatus of claim 3 as stated above. However, Eriksson et al. fails to teach the limitations of claim 5.

Takakusaki teaches a base station with a receiving apparatus comprising:

- A calibration signal supply unit (**Fig. 13, #1006**) operable to supply a calibration signal of a same level to the respective plurality of signal processing units (**Fig. 13, #1004, #1005**); and
- An offset determining unit (**Fig. 13, #1020**) operable to determine an offset for each of the plurality of signal processing units according to the calibration signal (**Col. 16, lines 4-7**) so as to standardize levels of signals obtained from the respective plurality of signal processing units, and
- The gain standardizing unit updates, for each of the plurality of signal processing units, the pre-stored offset to the determined offset (**Col. 13, lines 15-19**).

It would have been obvious to one of ordinary skill in the art to combine the calibration apparatus and offset determining unit of Takakusaki with the receiving apparatus taught by Eriksson et al. By using the calibration signal supply unit and offset determining unit to supply the threshold values for the controller of Eriksson, the threshold values can be continually updated throughout the receiving process, which will allow the antennas to further adapt and reduce the power needed for the receiver.

12. ^{6/11/13} Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al (US Patent No. 6,963,733) in view of Kobayakawa et al. (US Patent No. 6,058,318).

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13. Eriksson teaches the receiving apparatus of claims 1 and 3 as stated above.

However, Eriksson et al. fails to teach the receiving apparatus comprising a directivity processing unit operable to obtain a desired directivity by processing signals obtained from the respective plurality of signal processing units, using adaptive array technique.

Kobayakawa et al. teaches a multiple receiving circuits connected to some phase compensation calculators (**Fig. 1, #8-2**) that calculate the amounts of phase compensation and a beam former (**Col. 4, lines 25-35**). The phase compensator calculators calculated the difference between the phase of the output of the second antenna and the first output signal (**Col. 4, lines 43-50**). The phase is then adjusted and supplied to the beam former (**Col. 4, lines 50-53**). It would have been obvious to one of ordinary skill in the art to use the phase compensation calculators and beam former of Kobayakawa et al. with the receiving apparatus of Eriksson et al. because the gain would be enhanced and it would increase the number of users that can be accommodated by the receiving apparatus.

14. Claim ^{6/2}6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al. (US Patent No. 6,963,733) in view of Banh et al. (US Patent No. 5,721,757) as applied to claim 2 above, and in further view of Kobayakawa et al. (US Patent No. 6,058,318). Eriksson et al. and Banh et al. teach the receiving apparatus of claim 2 as stated above. However, both references fail to teach the receiving apparatus comprising a directivity processing unit operable to obtain a desired directivity by processing signals obtained from the respective plurality of signal processing units, using adaptive array technique. Kobayakawa et al. teaches a multiple receiving circuits

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connected to some phase compensation calculators (**Fig. 1, #8-2**) that calculate the amounts of phase compensation and a beam former (**Col. 4, lines 25-35**). The phase compensator calculators calculated the difference between the phase of the output of the second antenna and the first output signal (**Col. 4, lines 43-50**). The phase is then adjusted and supplied to the beam former (**Col. 4, lines 50-53**). It would have been obvious to one of ordinary skill in the art to use the phase compensation calculators and beam former of Kobayakawa et al. with the receiving apparatus of Eriksson et al. and Banh et al. because the gain would be enhanced and it would increase the number of users that can be accommodated by the receiving apparatus.

15. Claim ^{6/4 and 6/5}6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eriksson et al. (US Patent No. 6,963,733) in view of Takakusaki (US Patent No. 7,058,425) as applied to claims 4 and 5 above, and further in view of Kobayakawa et al. (US Patent No. 6,058,318). Eriksson et al. and Takakusaki teach the receiving apparatus of claims 4 and 5. However, both references fail to teach the receiving apparatus comprising a directivity processing unit operable to obtain a desired directivity by processing signals obtained from the respective plurality of signal processing units, using adaptive array technique. Kobayakawa et al. teaches a multiple receiving circuits connected to some phase compensation calculators (**Fig. 1, #8-2**) that calculate the amounts of phase compensation and a beam former (**Col. 4, lines 25-35**). The phase compensator calculators calculated the difference between the phase of the output of the second antenna and the first output signal (**Col. 4, lines 43-50**). The phase is then adjusted and supplied to the beam former (**Col. 4, lines 50-53**). It would have been obvious to

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one of ordinary skill in the art to use the phase compensation calculators and beam former of Kobayakawa et al. with the receiving apparatus of Eriksson et al. and Takakusaki because the gain would be enhanced and it would increase the number of users that can be accommodated by the receiving apparatus.

Conclusion

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Ly (US Patent No. 6,545,487)
- DeLuca et al. (US Patent No. 5,339,086)
- Sanada et al. (US Patent No. 6,862,442)


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gayla Futel whose telephone number is 571-270-3008. The examiner can normally be reached on Mon-Thur 7:00 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chris Kelley can be reached on 571-272-7331. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

GF


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